JUNE 28 - 30, 2005 NORFOLK CONVENTION CENTER

Experimentation Overview

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Sponsored by
SPAWARSYSCOM
FORCEnet Chief Engineer

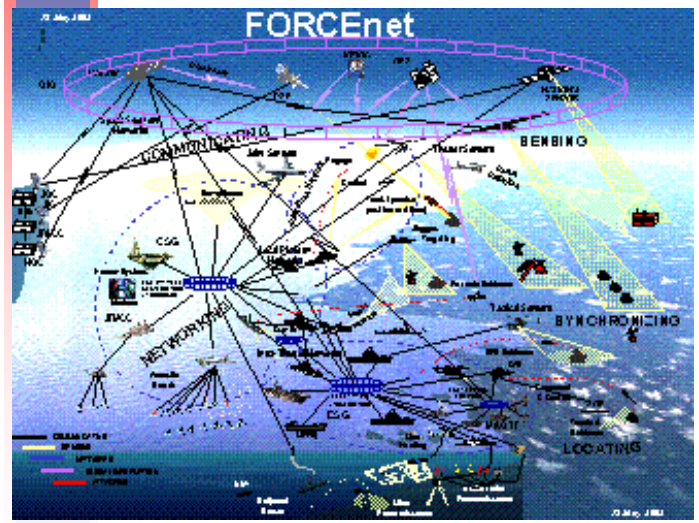
Mission Statement

Accelerate delivery of advanced C4ISR and FORCEnet capabilities through experimental fleet projects, operational experiments, demonstrations and assessments. Collect data and metrics resulting from experimental efforts to show increased performance resulting from FORCEnet to feed NCDP. Serve as Sea Trial Lead for COMSPAWAR and PEO C4I. Coordinate activities with other stakeholders. Pursue efficiencies in "Speed to Capability" efforts.

Efforts mapped to OPNAV, NETWARCOM, Fleet Top 10, and NCW / FORCEnet priorities

FORCEnet Description:

Naval Transformation Roadmap	Naval Sea Power 21	Naval Operating Concept for Joint Operations	Report to Congress on FORCEnet	FORCEnet
CNO, CMC, & SECNAV	CNO & CMC	CNO & CMC	SECNAV	CNO (N6/N7) & CG/MCCDC



FORCEnet is not an acquisition program

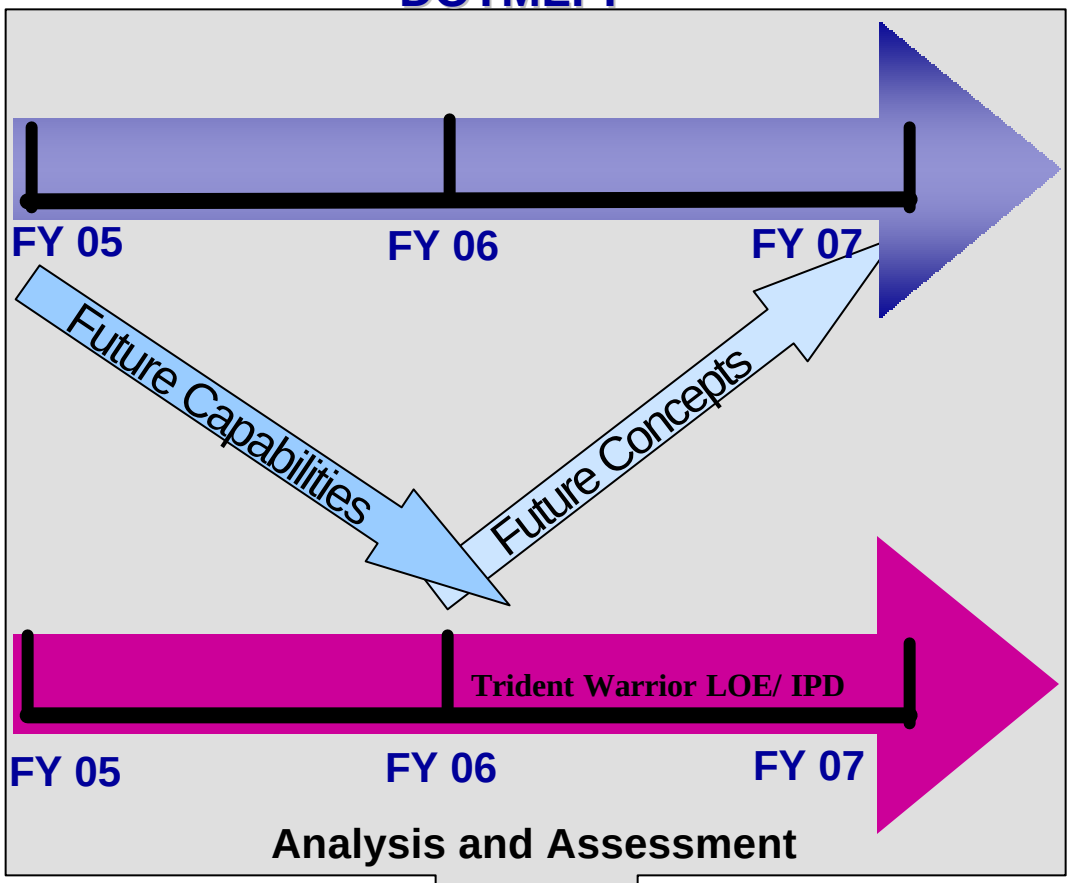
- **Mission**: USN/USMC alignment and integration effort for:
  - DoN/DoD transformation,
  - Accelerated Innovation, Testing, Assessment, and Fielding of Joint Warfighter Capability
  - Joint/Allied/Coalition interoperability, and
  - Development and implementation of enterprise requirements/architectures/standards
- **Description**: ***FORCEnet is the operational construct and architectural framework which integrates warriors, sensors, networks, command and control, platforms and weapons into a networked, distributed combat force***. It is the core of Navy and Marine Corps transformation, and the Naval vehicle to make Net-Centric Warfare an operational reality.
- **Platforms**: All Navy and Marine Corps Net-Centric Operations and Warfare Systems, Applications, and Platforms, with application to Army, Air Force, Joint, Federal, and Allied/Coalition systems/platforms.
- **Employment**: All of the above systems/platforms. In FY03 and 04, **initial employment of FORCEnet capability successfully completed in two Expeditionary Strike Groups**

Two Path Strategy
Concepts feeding Capability Delivery

Netting the FORCE for transformational combat capability

DOTMLPF

CD&E Path
Mid and Far Term:
DARPA
ONR/ NWDC
JFCOM/ SSC



- **Leverage Navy and Joint: Exercises, Experiments and Operations**
- **Leverage Joint and Service Sponsored Wargames and Seminars**

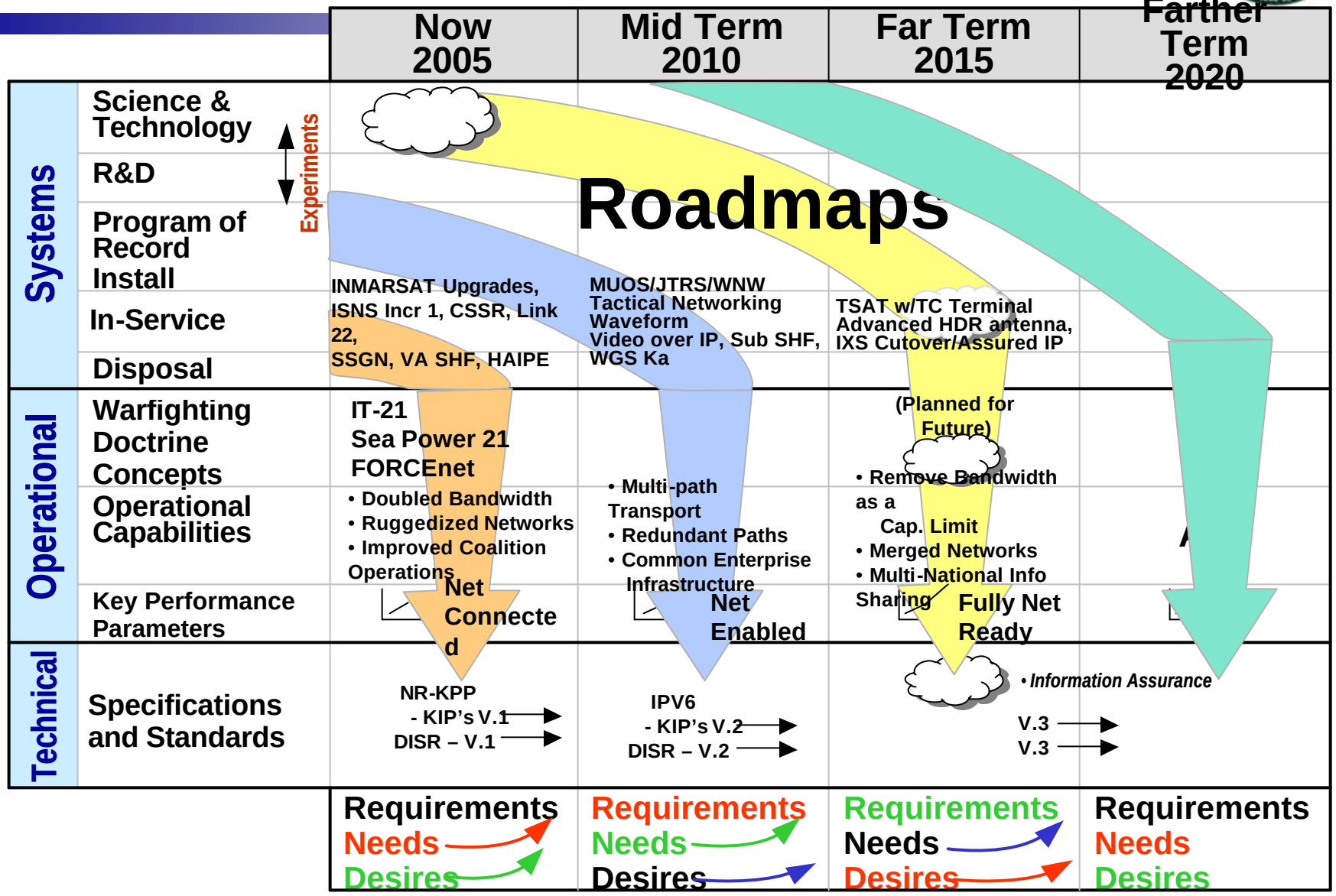
Prototype Path
Near Term:
SYSCOMs
OA Leads

- **Leverage Navy and Joint: Exercises, Experiments, Initiatives, Operations and Wargames**

Requirements Acquisition & Fielding: PEO

Block 0 | Block 1 | • • •

Executing the "Plan"

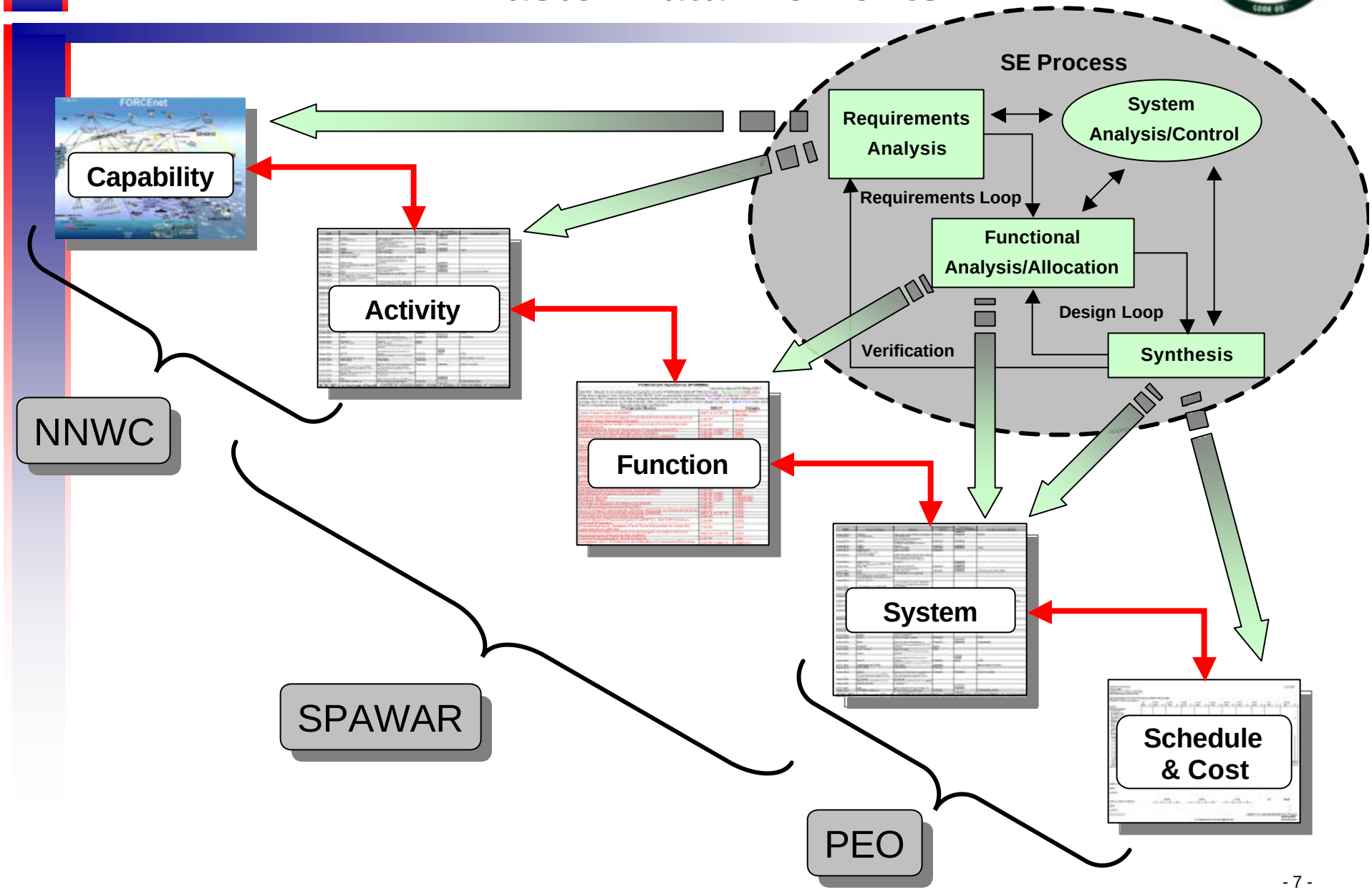


NCW Level Components

	Platform	Level 0 Basic Network Connection	Level 1 Higher Bandwidth & Improved Network Infrastructure	Level 2 NCW Enabled	Level 3 Fully NCW Ready
Bandwidth Enabled	Ships Subs Shore	IP capable, Link 11, Link 16, MIDS-LVT (LOS Only), DWTS, CWSP, EHF MDR, DSCS, INE	INMARSAT upgrades (2X BW), GBS IP migration, EHF TIP, X/C-Band for DDGs, ADNS Incr 2 (IP Static QoS Mechanism, Traffic Mgmt Mechanism & Application Prioritization, WGS BW Bottleneck), ISNS Incr 1 (Traffic Shaping/IP compression), Link 22, Dynamic Data Link Network Management, CSRR, Sub HDR antenna, High Speed Global Ring (HSGR), SSGN, VA SHF, Sub cutover to IP, BLOS Tactical Data Exchange, VoIP Incr 1, HAIPE	IPv6, NMT (4X Protected BW (2 Mbps)), WGS w/ EBEM modem (10X BW (15 Mbps)), MUOS (64 Kbps to small term), JTRS, WNW, Tactical Networking Waveform, Video over IP, CDL Spiral 1, Sub COMMS at Speed/Depth, Sub SHF (FOT, Sub X-Band Turbocodic modem), WGS Ka, ADNS Incr 3 (Black Core Routing), Satellite Dynamic Bandwidth Allocation, Sub HDR antenna, VoIP Incr 2	TSAT w/ TC terminal (17-45 Mbps protected), Advanced HDR antenna, TCDL/Ku-band in the OE-538, VoIP Incr 3, IXS Cutover/Assured IP
	Aircraft	Legacy, MIDS-LVT (LOS Only), Link 11	Link 16, Link 22	MIDS JTR, WNW (TTNT-Like), Tactical Networking Waveform, Weapons Data Link	TSAT w/ TC terminal (17-45 Mbps protected), IXS Cutover
Services Oriented Architecture	Ships Subs Shore	Sharing of data via translators (Link 16 data to CCS via translators), IP Capable via LAN, Link 11, MIDS-LVT (LOS Only) Link 16 data integrated into Combat (exception of 10 CVs, CGs), Serial Crypto, INE, CENTRIXS, GPS Receivers(NAVSSI)	GCCS 4x (web enabled services). ISNS Incr 1 (ruggedized redundant network, GIG-E), SSEE incr E, NGC2P, Link 22, COMPOSE 2&3, Sub-LAN (Incr 1&2), CDL-N, SCI Networks incr 2, Enterprise Management Spiral 1, CENTRIXS BLK 2, CND Phase 3, EKMS Phase V, BLOS Tactical Data Exchange, Port DMS to ISNS/Sub LAN, GPS User Equipment Upgrade (NAVSSI, NAVWAR), HAIPE	IPv6, NCES Incr 2 (Common Enterprise Infrastructure, Open Services/Interfaces, Web-Enabled), DCGS/TCS, WNW uses CLIP for Combat interface, COMPOSE 4, CDL Spiral 1, CLIP, JTRS, WNW, Tactical Networking Waveform, SSEE incr F, JICO Support System , Enterprise Management Spiral 2, Content Based Encryption, GPS Modernized User Equipment, ISNS Incr 2	CDS (Content Based INFOSEC), Merged Networks, NCES (Incr 3), IP based combat systems (DDX, CVN 21), Assured IP, Sub-LAN Incr 3, Enterprise Management Spiral 3, SCI Networks incr 3
	Aircraft	Some aircraft with Link 16 MIDS-LVT (LOS Only), Link 11, GPS Receivers	Link 16, Link 16 data integrated into OFP, Link 22, GPS User Equipment Upgrade (NAVWAR)	CLIP, MIDS JTR, WNW (TTNT), Tactical Networking Waveform, Stand Alone Display uses IP data (Kneeboard IP capability via WNW pipe), WNW uses CLIP for host interface to OFP, Weapons Data Link, GPS Modernized User Equipment	CDS (Content Based INFOSEC), OFP uses IP based information, Modify OFP to handle IP based traffic
User Centric Information Systems	Ships Subs Shore	Sharing of data via translators, CDF/BGPHES/COBLU	GCCS 4x/JC2 Incr 1 (Web Enabled Devices, User Defined Operational Picture (UDOP)), COMPOSE 2&3, SSEE incr E, CUB (SCI GCCS), METOC Upgrades, NTCSS, Optimized Organizational Maintenance Activity (OOMA), TMIP-M, Navy Enterprise ERP Convergence Effort, CBR Dispersion, JWARN,	IPv6, JC2 Incr 2 (Common Enterprise Infrastructure, Applications Migrate to NCES), CLIP, COMPOSE 4, DCGS/TCS, SSEE incr F, JICO Support System	JC2 Incr 3 (DOD wide use of Services Oriented Architecture), CDS (Content Based INFOSEC)
	Aircraft				JC2 Incr 3 (Modified OFP to handle IP based Information)

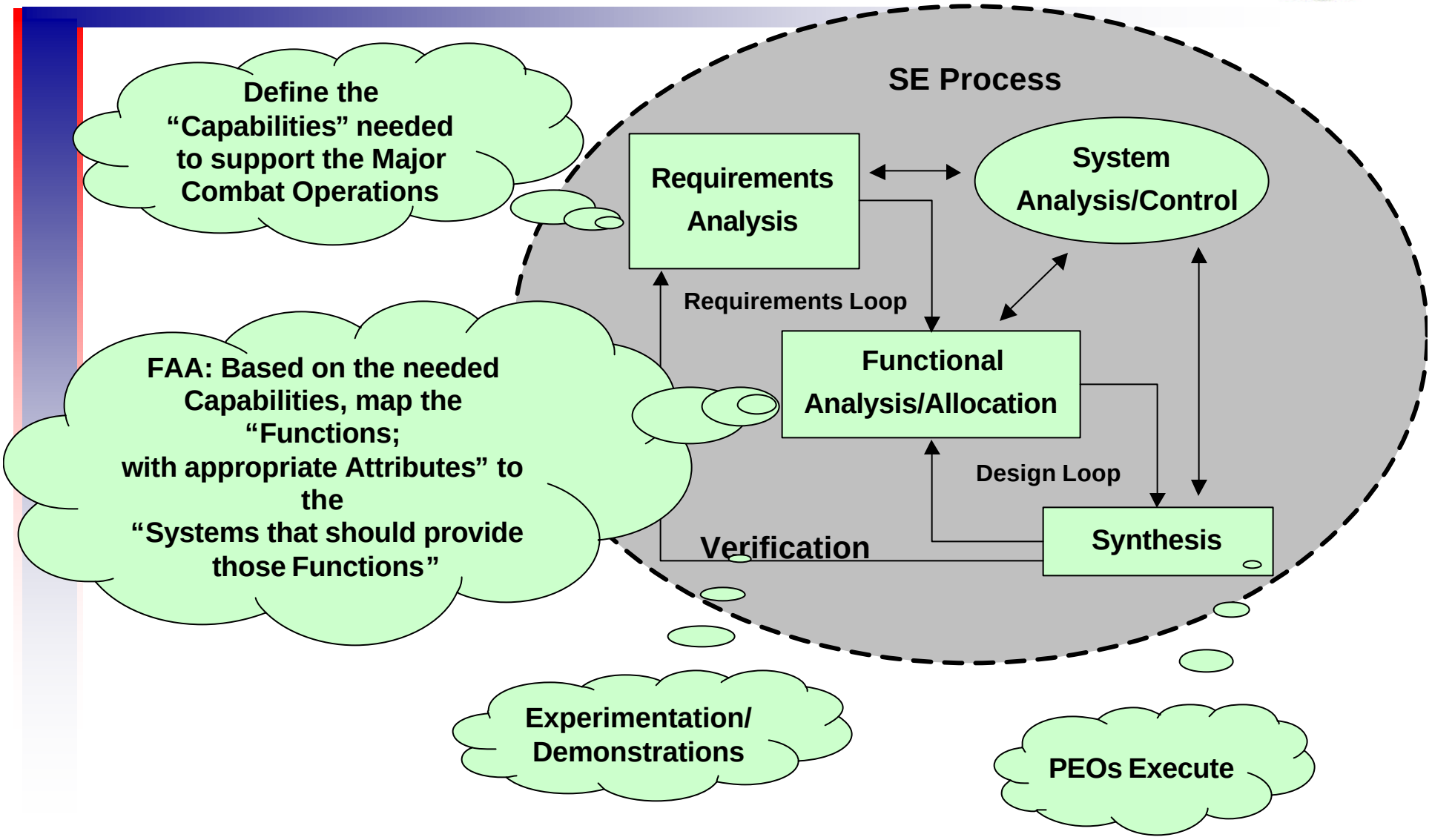
Systems Engineering

Master Data Elements

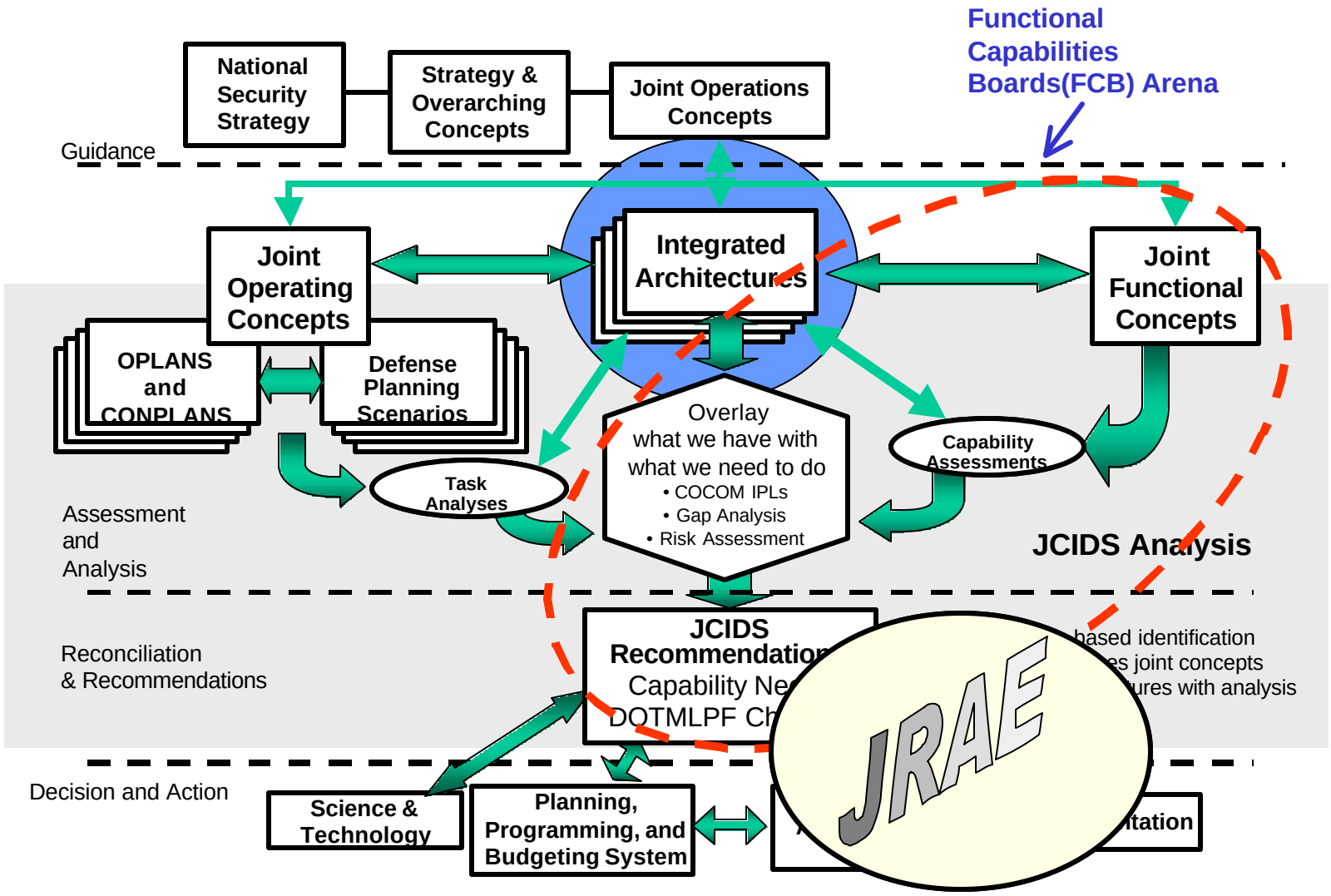


Systems Engineering Model

"SPRDE"



Joint Capability Integration Development System (JCIDS)



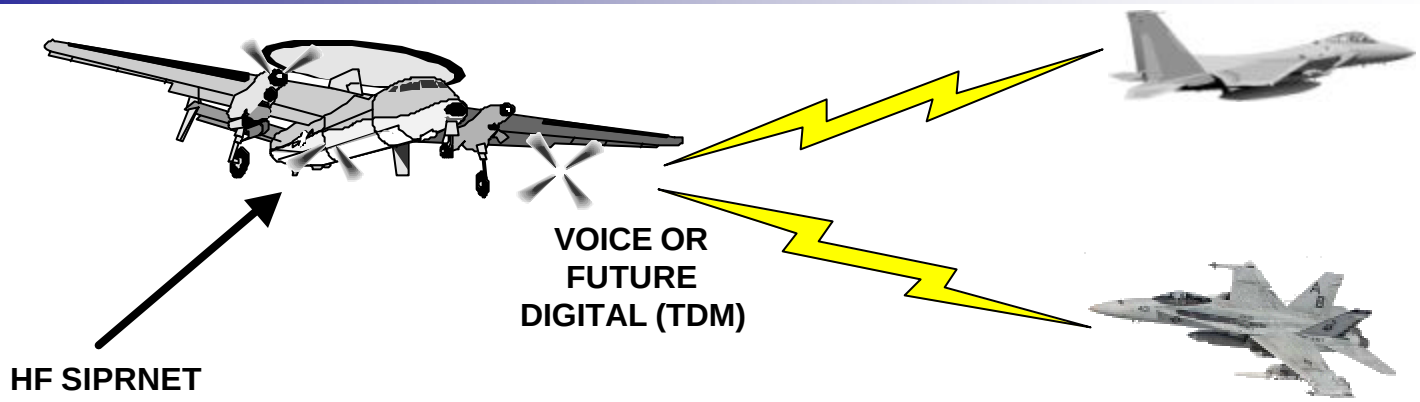
Sea Strike Priorities

1. C2 and C4ISR Interoperability
2. ISR Data Delivery to Ships
3. Time Sensitive Targeting
4. Unmanned Vehicles
5. Naval Fires Support Tools
6. IO Targeting
7. Jam Resistance for GPS Weapons **(Assessments only)**
8. Cross-Warfare tactical decision aids
9. Portable/expendable shipboard-launched air targets
10. Multi-Spectral passive search, detect & track system

- Source: CFFC, 2005 Sea Trial Concept Development & Experimentation (CD&E) Plan, dtd DEC 2004

CWID (JWID) Accomplishments

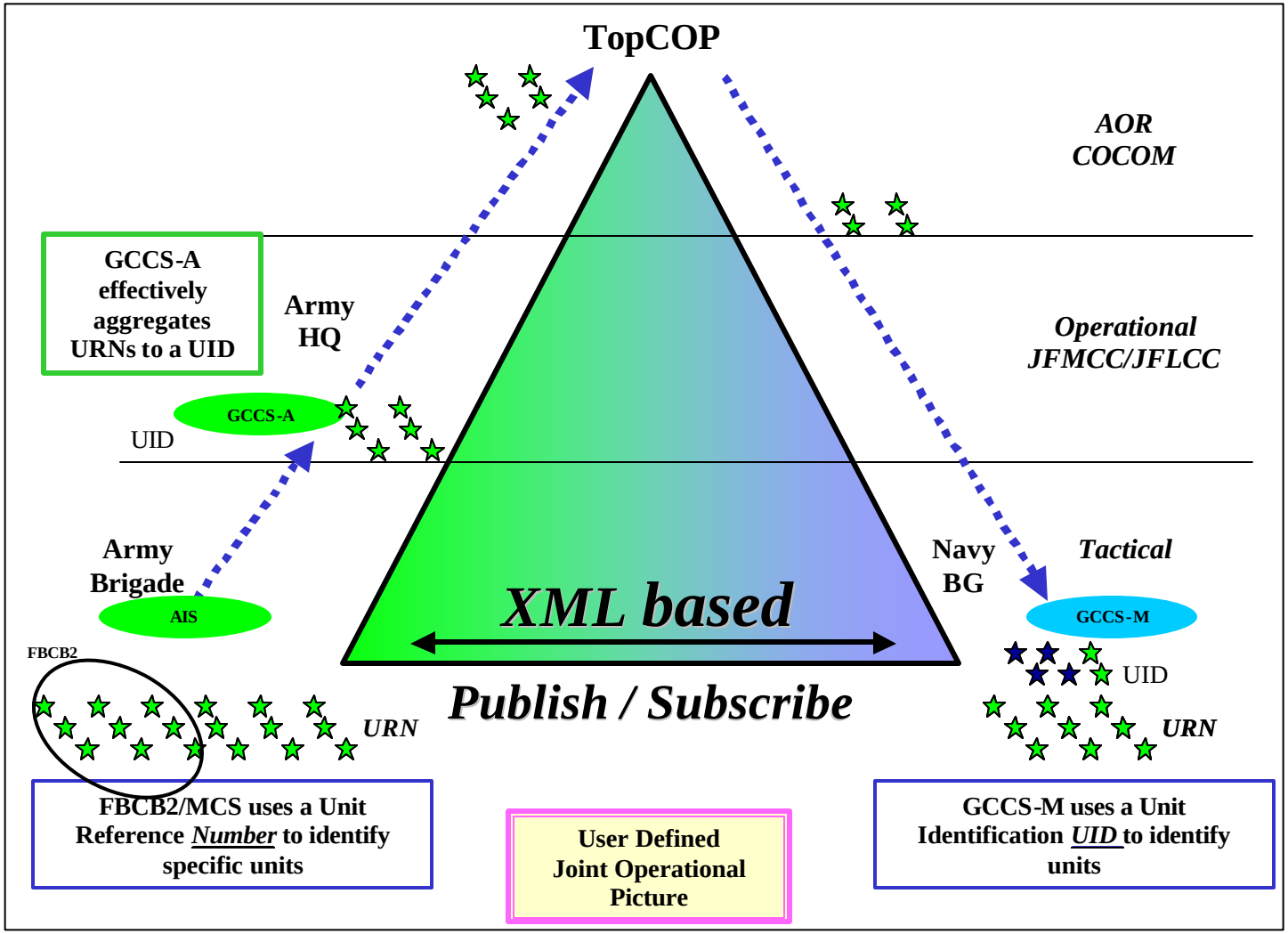
(now a part of Battlespace Networking Initiative)



Targeting information received via HF SIPRNET to best available strike assets in seconds, not minutes.

E2C HF SIPRNET - - Completed flight tests NAVAIR 8/03; 12.8 Kbs data rate @ 100+ miles
- ONR sponsor, MOA between POE C4I, PEO IT, ASN RDA in place
- May 04 received RTT funds, also avail in FY 05
- In year one of two year transition from ONR to PMA 231 and PMW 179
- ROOSEVELT Install FY 04 - VAW 124 CAW 8; (4) air installs, (1) ship

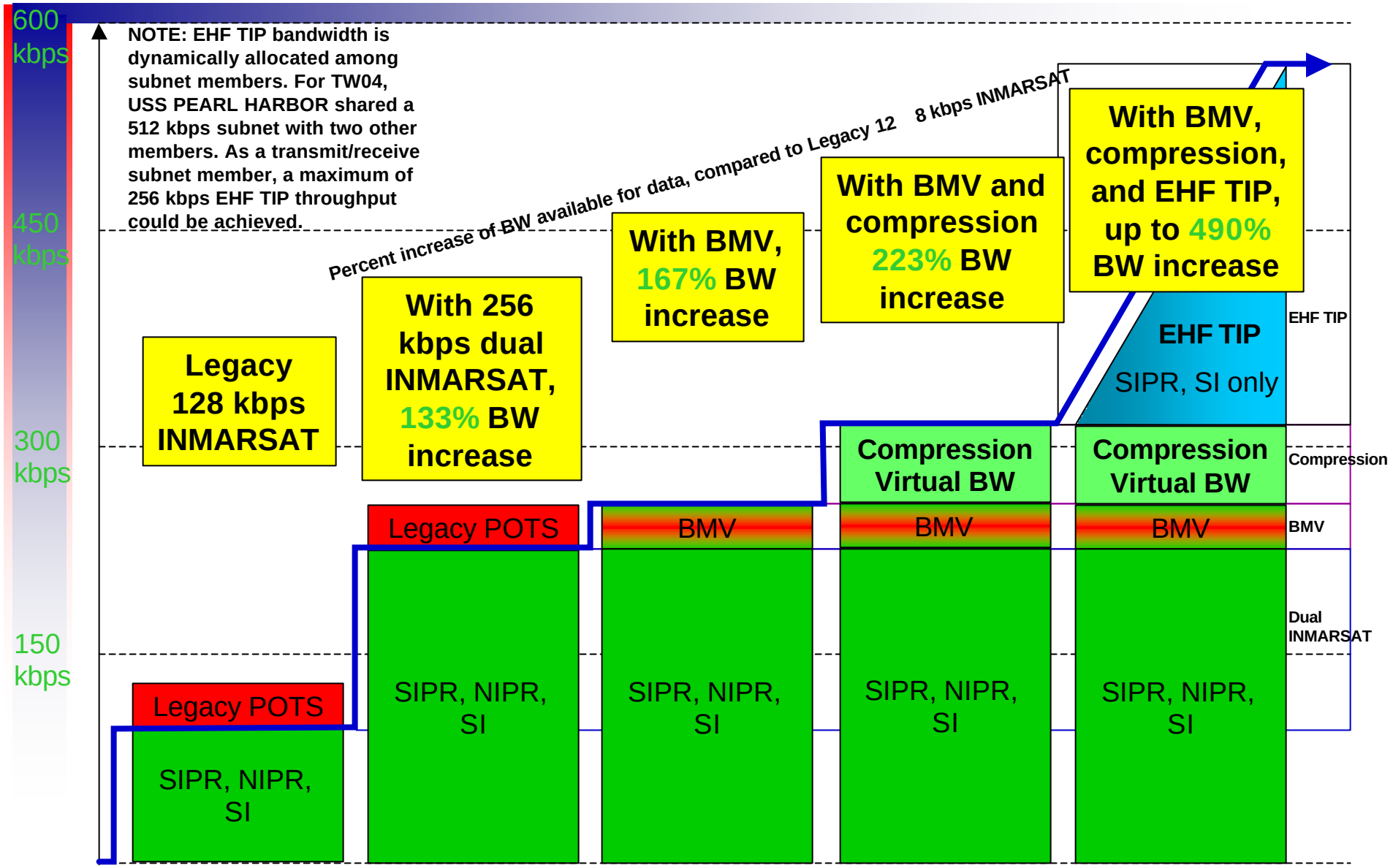
JRAE: UDOP/BFT



New XML based process...User defines COP (pub/sub) to show BFT

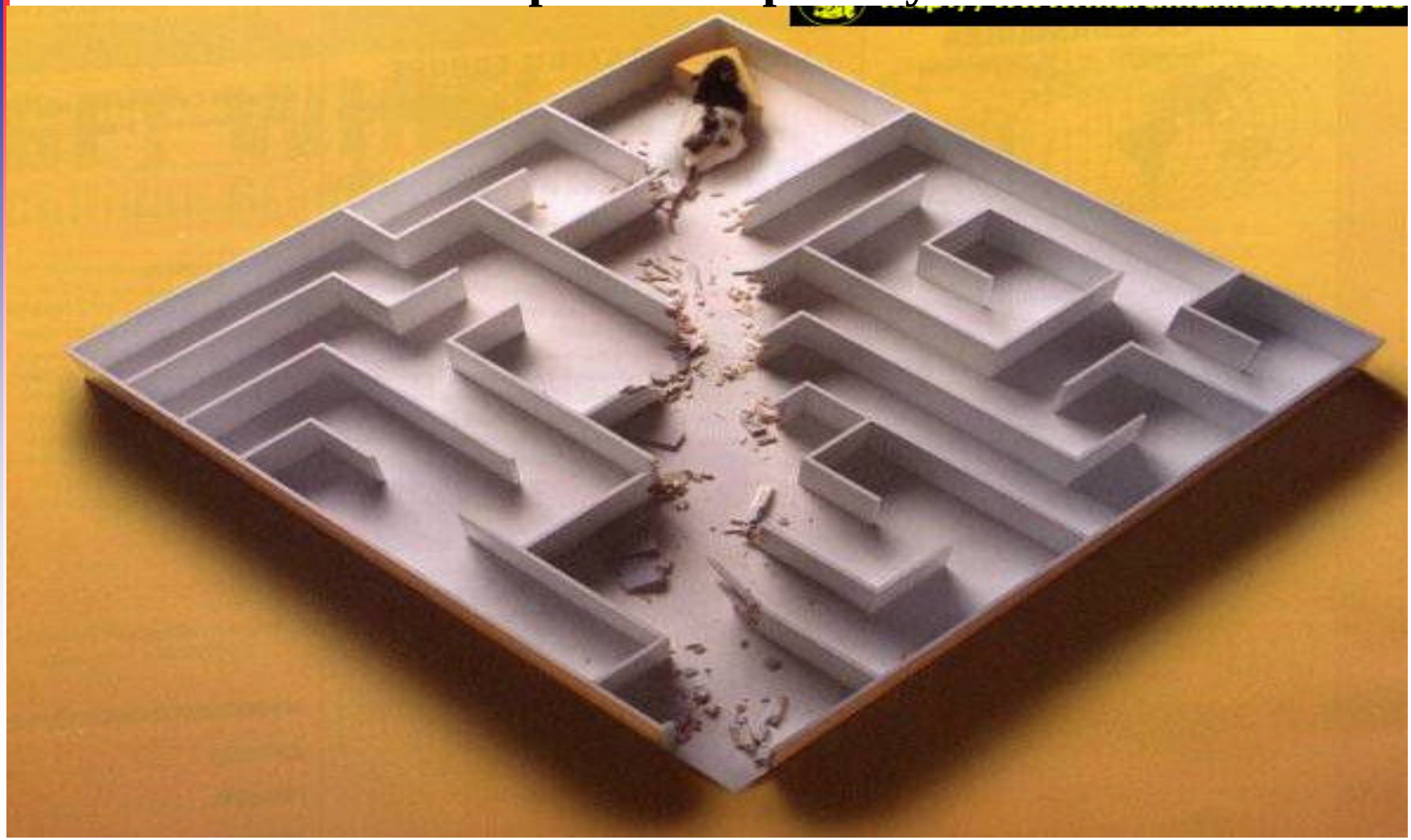
Current TopCOP Process for showing Blue Force location

TW04 Unit Level Ship BW Improvements for Data



Questions?

“Speed to Capability”



"ENJOY the Journey! – If we're not having fun, then we're not doing it right"